

THE COMMONWEALTH OF MASSACHUSETTS

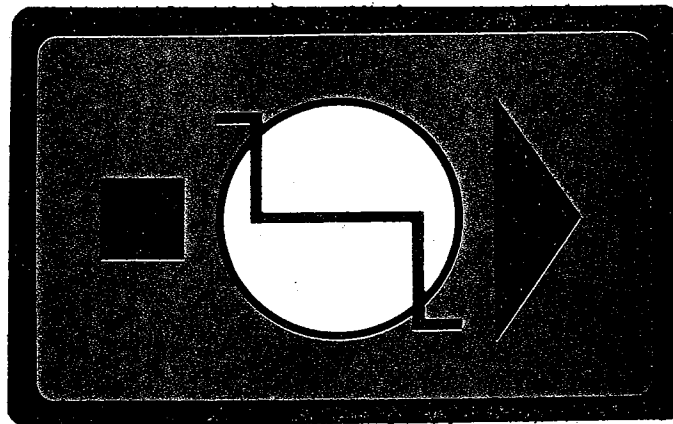
DEPARTMENT OF PUBLIC SAFETY

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RULES AND REGULATIONS

of the

BOARD TO FACILITATE  
THE USE OF PUBLIC BUILDINGS  
BY THE PHYSICALLY HANDICAPPED



Form PHR-1

This Publication No. 1098 is Approved by  
Alfred C. Holland, State Purchasing Agent

The International Wheelchair Symbol shown on the front cover will be used as a directional sign to building entrances and routes of travel usable by physically handicapped persons. It will also serve as an identification symbol on all facilities provided for the handicapped.

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In accordance with the provisions of Chapter 22, (Section 13A) as amended by Chapter 724, Acts of 1967, G. L. Ter. Ed., the Board to Facilitate The Use Of Public Buildings By The Physically Handicapped hereby makes the following rules and regulations which are designed to make public buildings accessible to, functional for, and safe for use by physically handicapped persons.

## 1. SCOPE

1.1 The provisions of these rules and regulations are designed to facilitate the use of public buildings for the physically handicapped. So long as any such rule or regulation is in effect, no public building shall be constructed, reconstructed, altered or remodeled except in conformity therewith unless upon application of the board or officer in charge of such construction, reconstruction, alteration or remodeling said board shall determine compliance with such rule or regulation to be impractical in the particular case, in which event, unless such rule or regulation is wholly waived, such construction, reconstruction, alteration or remodeling shall conform to such modification of or substitution for, such rule or regulation as said board may prescribe.

1.2 These rules and regulations shall apply to all buildings hereafter constructed, reconstructed, altered or remodeled, subject to the provisions of paragraph 3, Section 13A, Chapter 22.

## 2. DEFINITIONS AND CLASSIFICATIONS

2.1 "BOARD," Board to Facilitate the Use of Public Buildings by the Physically Handicapped.

2.2 "DEPARTMENT," Department of Public Safety.

2.3 "PHYSICALLY HANDICAPPED PERSON," a person confined to a wheelchair, a person who, because of the use of braces or crutches or because of the loss of a foot or leg or because of an arthritic, spastic, pulmonary or cardiac condition, walks with difficulty or insecurity, a person who, due to a brain, spinal or peripheral nerve injury, suffers from a faulty coordination or palsy, a person who is blind or whose sight is so impaired that, functioning in a public area, he is insecure or exposed to danger, a person whose hearing is so impaired that he is unable to hear warning signals, and a

person whose mobility, flexibility, coordination and perceptiveness are significantly reduced by aging.

2.4 "PUBLIC BUILDING," buildings constructed by the commonwealth or any political subdivision thereof with public funds and generally open to public use.

2.5 "RAMP," an inclined walkway connecting two level areas of different elevation providing a smooth transition between such areas.

2.6 "WALK," an exterior pathway with a prepared surface placed at existing ground level.

2.7 "REMODELING" and/or "ALTERATION," as applied to a structure; a change or rearrangement in the structural parts or in the exit facilities; an enlargement, whether by extending on a side or by increasing in height; or the moving from one location or position to another; the term "alter" in its various modes and tenses and its participial forms, refers to the making of an alteration.

### 3. GENERAL PRINCIPLES AND CONSIDERATIONS

3.1 Wheelchair Specifications. The collapsible-model wheelchair of tubular metal construction with plastic upholstery for back and seat is most commonly used. The standard model of all manufacturers falls within the following limits, which were used as the basis of consideration:

- (a) Length: forty-eight (48) inches
- (b) Width, when open: twenty-six and one half ( $26\frac{1}{2}$ ) inches
- (c) Height of seat from floor: nineteen and one half ( $19\frac{1}{2}$ ) inches
- (d) Height of armrest from floor: twenty-nine (29) inches
- (e) Height of pusher handles (rear) from floor: thirty-six (36) inches
- (f) Width, when collapsed: twelve and one half ( $12\frac{1}{2}$ ) inches

#### 3.2 The Functioning of a Wheelchair

3.2.1 The fixed turning radius of a standard wheelchair, wheel to wheel, is eighteen (18) inches. The fixed turning

radius, front structure to rear structure, is thirty-one and one half ( $31\frac{1}{2}$ ) inches.

3.2.2 The average turning space required (one hundred eighty (180) and three hundred sixty (360) degrees) is sixty (60) by sixty (60) inches.

3.2.3 A minimum width of sixty (60) inches is required for two (2) individuals in wheelchairs to pass each other.

3.3 The Adult Individual Functioning in a Wheelchair

3.3.1 The average unilateral vertical reach is sixty (60) inches and ranges from fifty-four (54) inches to seventy-eight (78) inches.

3.3.2 The average horizontal working (table) reach is thirty and four fifths ( $30\frac{4}{5}$ ) inches and ranges from twenty-eight and one half ( $28\frac{1}{2}$ ) inches to thirty-three and one fifth ( $33\frac{1}{5}$ ) inches.

3.3.3 The bilateral horizontal reach, both arms extended to each side, shoulder high, ranges from fifty-four (54) inches to seventy-one (71) inches and averages sixty-four and one half ( $64\frac{1}{2}$ ) inches.

3.3.4 An individual reaching diagonally, as would be required in using a wall-mounted dial telephone or towel dispenser, would make the average reach (on the wall) forty-eight (48) inches from the floor.

3.4 The Individual Functioning on Crutches

3.4.1 On the average, individuals five (5) feet six (6) inches tall require a minimum width of thirty-one (31) inches between crutch tips in order to proceed safely.

3.4.2 On the average, individuals six (6) feet tall require a minimum width of thirty-two and one half ( $32\frac{1}{2}$ ) inches between crutch tips in order to proceed safely.

3.5 All required exits, ramps, sidewalks, doors and their appurtenances shall be kept unobstructed, free from snow and ice, and in good repair at all times.

#### 4. WALKS

4.1 Public walks shall be at least sixty (60) inches wide and shall have a gradient not greater than five (5) percent.

4.2 Such walks shall have a continuous common surface, not interrupted by steps or abrupt changes in level and shall have a common nonslip surface.

4.3 Wherever walks cross other walks, driveways, or parking lots, they shall blend to a common level. Wherever groupings of buildings exist, such as school campuses and other similar establishments, ramp-like access shall be provided from street to sidewalk.

4.4 A walk shall have a level platform which is at least five (5) feet by five (5) feet if a door or gate swings out onto the platform or toward the walk. This platform shall extend at least one (1) foot beyond each side of the doorway.

4.5 A walk shall have a level platform at least four (4) feet deep and five (5) feet wide if the door or gate does not swing onto the platform or toward the walk. This platform shall extend at least one (1) foot beyond each side of the doorway.

## 5. PARKING LOTS, GARAGES AND OTHER PARKING FACILITIES

5.1 Spaces that are accessible to and near the facility shall be set aside and identified by a sign indicating same is reserved for physically handicapped persons and also by the International Wheelchair Symbol for the physically handicapped as specified herein.

5.2 A parking space is adequate when it is open on one side and allows room for individuals in wheelchairs or on braces and crutches to get in and out of an automobile onto a level surface, suitable for wheeling and walking.

5.3 Parking spaces for individuals with physical disabilities when placed between two conventional diagonal or head-on parking spaces shall be twelve (12) feet wide.

5.4 Consideration shall be given the distribution of spaces for use by the physically handicapped in accordance with the frequency and persistency of parking needs.

5.5 Walks and ramps leading from parking lots, garages and other parking facilities shall be in conformity with these regulations.

## 6. RAMPS

6.1 A ramp shall not have a slope greater than one (1) foot rise in ten (10) feet.

6.2 A ramp shall have handrails thirty-three (33) inches in height and a midrail sixteen (16) inches, measured from the surface of the ramp. Said handrails shall be on both sides. The handrails shall be smooth, shall extend one (1) foot beyond the top and bottom of the ramp, shall be not less than one and one quarter ( $1\frac{1}{4}$ ) inches or more than two (2) inches in diameter, and shall be oval or round in construction. A minimum clearance of one and one half ( $1\frac{1}{2}$ ) inches shall exist between the inner border of the handrail and the wall where the handrail is adjacent to the wall.

6.3 A ramp shall have a surface that is nonslip.

6.4 A ramp shall have a level platform which is at least five (5) feet by five (5) feet if a door swings out onto the platform or toward the ramp. This platform shall extend at least one (1) foot beyond each side of the doorway.

6.5 A ramp shall have a level platform at least four (4) feet deep and five (5) feet wide if the door does not swing onto the platform or toward the ramp. This platform shall extend at least one (1) foot beyond each side of the doorway.

6.6 Each ramp shall have at least six (6) feet of straight clearance at the bottom.

6.7 Ramps shall have level platforms at thirty (30) foot intervals for purposes of rest and safety and shall have level platforms wherever they turn.

## 7. ENTRANCES

7.1 At least one (1) primary entrance to each building shall be usable by individuals in wheelchairs and other physically handicapped persons.

NOTE: Because entrances also serve as exits, some being particularly important in case of an emergency, and because the proximity of such exits to all parts of buildings and facilities, in accordance with their design and function is essential, it is preferable that all or most entrances (exits) should be accessible to, and usable by, individuals in wheelchairs and individuals with other forms of physical disability herein applicable.



7.2 At least one (1) entrance usable by individuals in wheel-chairs shall be on a level that would make the elevators accessible.

7.3 All vestibules, lobbies, foyers, etc. shall be a minimum of seven (7) feet deep and shall extend at least one (1) foot beyond each side of the doorway.

## 8. DOORS AND DOORWAYS

8.1 Doors shall have a minimum width of three (3) feet.

8.2 Each leaf of a two-leaf door shall be a minimum width of three (3) feet.

8.3 The manual pull or push on a door shall not exceed ten (10) pounds in order to operate the door. Doors requiring greater force to activate shall be equipped with compensating springloaded devices to reduce the force to a maximum of ten (10) pounds or shall be otherwise equipped for automatic operation.

8.4 Interior thresholds shall be flush with the floor, and exterior thresholds shall not exceed one half ( $\frac{1}{2}$ ) inch in height.

8.5 The floor inside and/or outside of each doorway shall be level for a distance of five (5) feet from the door in the direction the door swings and shall extend one (1) foot beyond each side of the door.

## 9. STAIRS

All designated egress stairs shall comply with the following:

9.1 Such stairs shall be located conveniently to the exterior door that is within the route of travel.

9.2 Such stairs shall be constructed without protruding nosings at top of risers. The surface of risers may be sloped, as long as the horizontal projection of the riser does not exceed one (1) inch.

9.3 Such stairs shall not contain any winders and shall be a minimum of three (3) feet six (6) inches in width.

9.4 All risers and treads shall conform to the rules and regulations promulgated by the Department of Public Safety.

9.5 Handrails to such stairs shall be set at approximately thirty-three (33) inches and a midrail sixteen (16) inches vertically above the point of intersection of tread and riser. At least one (1) handrail on each flight of stairs shall extend eighteen (18) inches beyond the top step and the bottom step, at a height of thirty-six (36) inches above the level of the landing. Handrail extensions shall be designed so that they in themselves do not become a hazard.

9.6 Handrails shall be not less than one and one quarter ( $1\frac{1}{4}$ ) inches or more than two (2) inches in diameter and shall be oval or round in construction. A minimum clearance of one and one half ( $1\frac{1}{2}$ ) inches shall exist between the inner border of the handrail and the wall where the handrail is adjacent to a wall.

## 10. FLOORS

10.1 Floors shall have a surface that is nonslip.

10.2 Floors on a given story shall be of a common level throughout or be connected by a ramp as defined herein.

## 11. TOILET ROOMS

11.1 Each floor shall have toilet rooms for each sex. Said toilet rooms shall have facilities in them for the handicapped in accordance with the following rules 11.2 through 11.10.

11.2 Toilet rooms shall have space to allow traffic for individuals in wheelchairs.

11.3 Toilet room vestibules shall have doors at least three (3) feet wide. Any vestibule created by a series of doors used in entering such a toilet room shall have a minimum clear area of four (4) feet by five (5) feet.

11.4 Toilet rooms shall have at least one (1) toilet stall that:

(a) Is five (5) feet six (6) inches wide and at least five (5) feet six (6) inches deep or

(b) Is at least six (6) feet wide and five (5) feet deep

- (c) Has a door (where doors are used) that is thirty-six (36) inches wide, swings out and has handrail and lock thirty-six (36) inches above the floor
- (d) Has handrails on each side, thirty-three (33) inches high and parallel to the floor, one and one half ( $1\frac{1}{2}$ ) inches in outside diameter, with one and one half ( $1\frac{1}{2}$ ) inches clearance between rail and wall, and fastened securely at both ends and the center
- (e) Has a water closet with the seat twenty (20) inches from the floor
- (f) Has the water closet located at one side, two (2) feet from center of fixture to the side wall
- (g) A wall-mounted water closet with a narrow under-structure that recedes sharply shall be used.

11.5 Wash basins shall be wall mounted without legs or pedestals.

11.6 Wash basins shall have a minimum clearance of two (2) feet two (2) inches under the apron and bowl to a point ten (10) inches from the front of the fixture.

11.7 Exposed drain pipes and hot-water pipes under a wash basin shall be insulated.

11.8 If a mirror and shelf are provided above a wash basin, they shall be at a height no greater than forty (40) inches above the floor, measured from the top of the shelf and the bottom of the mirror.

11.9 Toilet rooms for men shall have wall-mounted urinals with the opening of the basin nineteen (19) inches above the floor.

11.10 Toilet rooms shall have an appropriate number of towel racks, drying devices, towel dispensers, and other dispensers mounted so as to be reached by hands at forty (40) inches above the floor.

## 12. WATER FOUNTAINS

12.1 Water fountains or coolers shall have up-front spouts and hand-operated controls. (Other types of controls may be installed in addition to hand operated controls.)

12.2 Wall mounted coolers shall be mounted with the basin three (3) feet above the floor.

12.3 If floor mounted water coolers more than three (3) feet are used, a paper cup dispenser shall be mounted three (3) feet above the floor.

### 13. PUBLIC TELEPHONES

13.1 Where public telephones are provided, at least one (1) public telephone shall be accessible to and usable by a person in a wheelchair. The dial, handset and coin deposit slots shall be mounted not more than four (4) feet above the floor, and the receiver shall be equipped with an amplifier.

### 14. ELEVATORS

14.1 An elevator shall be provided in any building with two (2) or more operating levels, and the elevator shall conform with the following regulations:

14.2 At least one (1) elevator in a single or double bank of elevators shall qualify with the following regulations.

14.3 The shaft doors to such elevators shall provide a clear opening of at least thirty-two (32) inches in width.

14.4 The interior dimensions of the platform of such elevators shall be at least four (4) feet by four (4) feet in size.

14.5 The uppermost controls of automatic elevators shall be located no higher than sixty (60) inches above the level of the elevator platform.

14.6 All controls on the elevator shall be with raised numbers and/or letters for use by the blind.

### 15. CONTROLS

15.1 Switches and controls for light, fire alarms, and all similar controls shall be placed no higher than forty-eight (48) inches nor lower than thirty-six (36) inches from the floor.

## 16. IDENTIFICATION FOR USE OF PUBLIC BUILDINGS BY THE BLIND

16.1 Raised or recessed letters, suitable for reading by touch, shall be used to identify exits, stairways, toilet rooms and elevators.

16.2 Such identification shall be placed at a point between four (4) feet six (6) inches and five (5) feet six (6) inches, measured from the floor, and preferably at five (5) feet.

16.3 Doors that are not intended for normal use and that might prove dangerous if a blind person were to exit or enter by them shall be made quickly identifiable to the touch by knurling the door handle or knob.

Example: Such doors might lead to loading platforms, boiler rooms, stages, fire escapes, etc.

16.4 Warning signals, such as fire alarms, shall be equipped with both audible and visual signals in order to assist the visually handicapped and the deaf, respectively.

## 17. PLACES OF ASSEMBLY

17.1 Places of assembly coming under the provisions of these regulations shall conform to the following requirement, in addition to requirements set forth in other codes and ordinances. Such places of assembly shall provide a clear space within the rear half of the assembly for wheelchair occupants, equal to at least one (1) percent of the capacity of the place of assembly. In lieu of a clear space, there may be provided sections of fixed seating that can be readily unfastened and removed, when the occasion warrants. Such designated area or areas shall in no way interfere with the required exit facilities of the place of assembly.

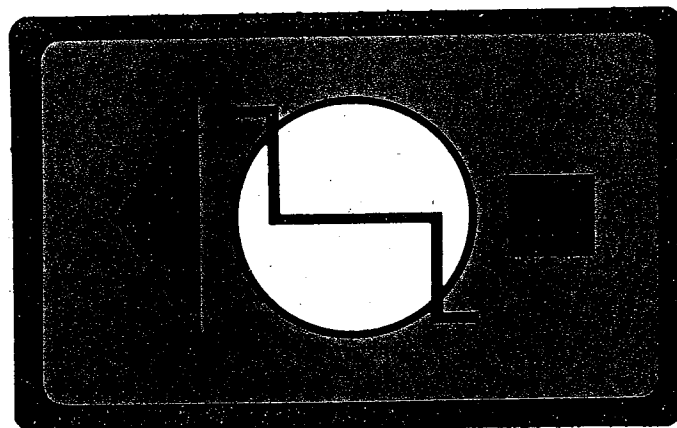
17.2 Cafeterias and dining areas shall be designed to allow passage of a wheelchair through the food service lanes and between tables. Cutlery and food display racks shall be visible and within reach of a person seated in a wheelchair.

## 18. IDENTIFICATION

18.1 All buildings under the jurisdiction of the rules and regulations of this Board shall use the International Wheelchair

Symbol designating the areas of accessibility, viz: ingress, egress, main travel routes, toilets and elevators for use by the physically handicapped. (See symbol below.)

18.2 The location of the said symbol shall be as required in Section 16.2 of the regulation.



International Wheelchair Symbol  
for  
Architectural Modifications for the Handicapped

THE COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF PUBLIC SAFETY  
BOARD TO FACILITATE THE USE OF  
PUBLIC BUILDINGS BY THE PHYSICALLY HANDICAPPED

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A true copy, Attest:

*Leo L. Laughlin*

LEO L. LAUGHLIN  
Commissioner of Public Safety

Received on *December 13, 1968*

*Leo L. Laughlin*

LEO L. LAUGHLIN  
Commissioner of Public Safety

Deposited with the Secretary of the  
Commonwealth on *December 18, 1968*  
in accordance with the provisions  
of S. 13A, C. 22 of the G.L., inserted  
by C. 724 of the Acts of 1967; G.L.  
C. 30, S. 37 and C. 30A, S. 5.

*Leo L. Laughlin*

LEO L. LAUGHLIN  
Commissioner of Public Safety

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